DIRECT TESTIMONY

of

SHEENA KIGHT

Finance Department

Financial Analysis Division

Illinois Commerce Commission

Illinois-American Water Company
Proposed General Increase In Water Rates

Docket No. 02-0690

February 5, 2003

Table of Contents

1 **Witness Identification**

2 **Q.** **Please state your name and business address.**

3 A. My name is Sheena Kight. My business address is 527 East Capitol Avenue,

4 Springfield, IL 62701.

5 **Q.** **By whom are you employed and in what capacity?**

6 A. I am employed by the Illinois Commerce Commission ("Commission") as a

7 Financial Analyst in the Finance Department of the Financial Analysis Division.

8 **Q.** **Please describe your qualifications and background.**

9 A. In May of 1998, I received a Bachelor of Business degree in Finance and

10 Marketing from Western Illinois University in Macomb, Illinois. I earned a Master

11 of Business Administration degree, with a concentration in Finance, also at

12 Western Illinois University in May 2001. I have been employed by the

13 Commission in my present position since January of 2001.

14 **Q.** **Please state the purpose of your testimony in this proceeding.**

15 A. The purpose of my testimony is to present the overall cost of capital and to

16 recommend a fair rate of return on rate base for Illinois-American Water

17   Company ("Company" or "IAWC"). I will also respond to the direct testimony of

18   IAWC witness Paul R. Moul.

19   **Cost Of Capital**

20   **Q.**   **Please summarize your cost of capital findings.**

21   A.   The overall cost of capital for IAWC is 7.38%, as shown on Schedule 6.01.

22   **Q.**   **Why must one determine an overall cost of capital for a public utility?**

23   A.   Under the traditional regulatory model, the proper balance of ratepayer and

24   shareholder interests occurs when the Commission authorizes a public utility a

25   rate of return on its rate base equal to its overall cost of capital. If the authorized

26   rate of return on rate base exceeds the overall cost of capital, then ratepayers

27   bear the burden of excessive prices. Conversely, if the authorized rate of return

28   on rate base is lower than the overall cost of capital, then the utility may be

29   unable to raise capital at a reasonable cost. Ultimately, the utility's inability to

30   raise sufficient capital would impair service quality. Therefore, ratepayer

31   interests are served best when the authorized rate of return on rate base equals

32   the overall cost of capital.

33   In authorizing a rate of return on rate base equal to the overall cost of capital, all

34   costs of service are assumed reasonable and accurately measured. If

35   unreasonable costs continue to be incurred, or if any reasonable cost of service

36   component is measured inaccurately, then the allowed rate of return on rate base

37   will not balance ratepayer and investor interests.

38 **Q.   Please define the overall cost of capital for a public utility.**

39 A.   The overall cost of capital for a public utility equals the sum of the costs of the

40   components of the capital structure (i.e., debt, preferred and preference stock,

41   and common equity) after weighting each by its proportion to total capital.

42   **Capital Structure**

43 **Q.   What capital structure does the Company propose for determining the rate**

44   **of return on rate base?**

45 A.   The Company proposes determining the rate of return on rate base on the basis

46   of a forecasted average 2003 capital structure. The Company's proposed capital

47   structure appears on Schedule 6.01.

48 **Q.   What capital structure do you recommend for setting rates in this**

49   **proceeding?**

50   A.   My proposed capital structure is shown on Schedule 6.01. I also used a

51   forecasted average 2003 capital structure. However, I included short-term debt

52   in the Company's capital structure.

53   **Q.**   **Why is it appropriate to include short-term debt in the Company's capital**

54   **structure?**

55   A.   IAWC finances overall cash obligations by issuing short-term debt. Short-term

56   debt is then repaid with the proceeds of long-term financings. Since short-term

57   debt is ultimately replaced by long-term debt, it should be included in the

58   Company's capital structure. To appropriately reflect the amount of short-term

59   debt in IAWC's capital structure, I adjusted the Company's projected 2003, 12-

60   month average balance of short-term debt to reflect the delayed issuance of the

61   New Series debt from January 2003 to September 2003. If short-term debt is

62   excluded from IAWC's capital structure, the Company's decision to delay issuing

63   the New Series debt eight months would make it appear as if debt is providing a

64   lower proportion of capital than it does. This understatement of debt capital

65   would occur because the decline in the average principal amount outstanding for

66   2003 of New Series debt from $19,166,667 to $6,666,667, due to the eight-

67   month postponement of its issuance, incorrectly ignores the corresponding

68   increase in the average balance of short-term debt. Including short-term debt,

69   which will continue to support IAWC's investment until the New Series debt

70   replaces it, better represents the amount of debt outstanding during all of 2003.

71   The average short-term debt balances are presented on Schedule 6.02.

72 **Q.** **Did you make adjustments to the Company's proposed balance of long-**

73   **term debt?**

74 A. Yes. I made several adjustments to the long-term debt schedule to reconcile it

75   with Company responses to Commission Staff ("Staff") data requests and to

76   reflect other corrections, as I will discuss below. The long-term debt schedule is

77   presented on Schedule 6.03.

78 **Q.** **What adjustments did you make to IAWC's proposed balance of common**

79   **equity?**

80 A. IAWC's proposed capital structure assumes the Company's proposed rate

81   increase will be adopted by the Commission. However, Staff's recommended

82   rate increase differs from IAWC's proposal. Therefore, the Company's average

83   common equity balance was modified to reflect Staff's recommended rate

84   increase. Staff's common equity adjustment is shown on Schedules 6.01 and

85   6.04.

86 **Q.** **Does capital structure affect the overall cost of capital?**

87   A.   Yes. Financial theory suggests capital structure will affect the value of a firm

88   and, therefore, its cost of capital, to the extent it affects the expected level of

89   cash flows that accrue to third parties (i.e., other than debt and stock holders).

90   Employing debt as a source of capital reduces a company's income taxes,[1]

91   thereby reducing the cost of capital; however, as reliance on debt as a source of

92   capital increases, so does the probability of bankruptcy. As bankruptcy becomes

93   more probable, expected payments to attorneys, trustees, accountants and other

94   third parties increase. Simultaneously, the expected value of the income tax

95   shield provided by debt financing declines. Beyond a certain point, a growing

96   dependence on debt as a source of funds increases the overall cost of capital.

97   Therefore, the Commission should not determine the overall rate of return from a

98   utility's actual capital structure if it determines that capital structure adversely

99   affects the overall cost of capital.

100   An optimal capital structure would minimize the cost of capital and maintain a

101   utility's financial integrity. Unfortunately, determining whether a capital structure

102   is optimal remains problematic because (1) the cost of capital is a continuous

103   function of the capital structure, rendering its precise measurement along each

104   segment of the range of possible capital structures problematic; (2)

105

---

[1]   The tax advantage debt has over equity at the corporate level is partially offset at the individual investor level. Debt investors receive returns largely in the form of current income (i.e., interest). In contrast, equity investors receive returns in the form of both current income (i.e., dividends) and capital appreciation (i.e., capital gains). Taxes on capital gains are lower than taxes on interest and dividend income because capital gains tax rates are lower and taxes on capital gains are deferred until realized.

105   the optimal capital structure is a function of operating risk, which is dynamic; and

106   (3) the relative costs of the different types of capital vary with dynamic market

107   conditions. Consequently, one should determine whether the capital structure is

108   consistent with the financial strength necessary to access the capital markets

109   under all conditions, and if so, whether the cost of that financial strength is

110   reasonable.

111   Towards that end, I compared the Company's average 2003 capital structure to

112   industry standards. Standard & Poor's ("S&P") categorizes debt securities on the

113   basis of the risk that a company will default on its interest or principal payment

114   obligations. The resulting credit rating reflects both the operating and financial

115   risks of a utility.[2] Water utilities that have an 'A' credit rating have a mean total

116   debt ratio of 55.55%.[3] Gas and electric utilities that have an 'A' credit rating have

117   a mean total debt ratio of 53.07%. The mean common equity ratio for A-rated

118   water utilities equals 43.56%. The mean common equity ratio for S&P A-rated

119   gas and electric distribution utilities equals 44.46%. The above numbers are

120   shown in Table 1 below for comparative purposes.

121   _____

[2] *Standard & Poor's Utility Financial Statistics*, June 1999, p. 3; Standard & Poor's Utilities Rating
     Service: Industry Commentary, May 20, 1996, p. 1.
[3] *S& P Utility Compustat.*

121

TABLE 1: Capital Structure Ratios

	A-rated Water Utilities		A-rated Gas and Electric Utilities		IAWC Average 2003
	Mean	Standard Deviation	Mean	Standard Deviation	
Long-Term Debt Ratio	55.55%	1.76%	53.07%	12.38%	52.96%
Equity Ratio	43.56%	2.37%	44.46%	12.94%	45.23%

122   IAWC's average 2003, total debt and equity ratios are reasonably close to the

123   mean total debt and equity ratios for S&P A-rated water utilities and gas and

124   electric utilities. According to S&P, an obligor rated 'A' has a strong capacity to

125   meet its financial commitments but to a lesser degree than higher-rated obligors.[4]

126   The above suggests that the average 2003 capital structure for IAWC as

127   presented by Staff on Schedule 6.01 is commensurate with a strong but not

128   excessive degree of financial strength.

129   **Q.   On November 20, 2002, the Commission approved a reorganization of**

130   **IAWC through a merger of its parent holding company American Water**

131   **Works Company, Inc. ("AWWC") with Thames Water Aqua Holdings GmbH**

132   **("Thames Water"), a subsidiary of RWE Aktiengesellschaft ("RWE").[5] Does**

133   **your analysis consider the effects of this merger?**

---

[4]   *Standard & Poor's Utility Financial Statistics*, June 1999, p. 4.
[5]   ICC Docket No. 01-0832.

134   A.   Yes. RWE announced that the transaction was completed on January 10, 2003.

135   Since IAWC proposes using a 2003 test year, the effects of the reorganization

136   should be taken into consideration.   RWE is currently rated A+/stable.[6] The

137   credit ratings of Thames Water PLC, Thames Water Utilities Ltd., E'Town Corp.,

138   and Elizabethtown Water Co. were increased one notch from "A+" to "AA-" when

139   they were acquired by RWE. Thus, it follows the credit rating for American Water

140   Capital Corporation ("AWCC"), a wholly owned subsidiary of AWWC, should

141   increase from "A-/Watch positive" to "A."[7]

142   **Q.   S&P currently does not rate IAWC. Why did you compare IAWC's capital**

143   **ratios to those of A-rated utilities?**

144   A.   S&P categorizes debt securities on the basis of the risk that a company will

145   default on its interest or principal payment obligations. The resulting credit rating

146   reflects both the operating and financial risks of a utility.[8] In Docket No. 00-0306,

147   the Commission approved an agreement between AWCC and IAWC, for AWCC

148   to provide IAWC short-term and long-term debt capital. Since AWCC raises debt

149   capital on behalf of IAWC, I used the credit rating AWCC should have with the

150   completion of the merger with RWE.

---

[6]   Standard and Poor's, Summary: RWE AG, June 17, 2002.
[7]   Standard and Poor's, Summary: American Water Capital Corp., June 26, 2002.
[8]   Standard and Poor's Utilities Rating Service, "Utilities Rating Criteria," May 20, 1996, p. 1.

151   **Cost of Short-term Debt**

152   **Q.   What is IAWC's cost of short-term debt?**

153   A.   IAWC's cost of short-term debt is 1.60%. IAWC obtains short-term financing

154   from AWCC. IAWC's average discount rate for the period January 1, 2003

155   through January 21, 2003 was 1.5717% and the average term to maturity was 30

156   days.[9] Therefore, to estimate IAWC's cost of short-term debt, I converted the

157   Company's average January 2003 discount rate into an annual yield using the

158   following formula:

$$
\text{Annual yield} = \left[\frac{\text{discount rate} \ \times \ \left[\dfrac{\text{days to maturity}}{360} \right]}{1 - \text{discount rate} \ \times \ \left[\dfrac{\text{days to maturity}}{360} \right]} \right] \times \left[\frac{365}{\text{days to maturity}} \right]
$$

159   **Cost of Long-Term Debt**

160   **Q.   What is the embedded cost of long-term debt for IAWC?**

161   A.   As shown on Schedule 6.03, the average embedded cost of long-term debt for

162   2003 equals 5.15%. This calculation was based on IAWC Schedule D-3 (Second

163   Revised),[10] Exhibit No. 13.0, Page 1, with the following adjustments made to

---

[9]   Company's third revised response to Staff data request SK 6.01.
[10]   IAWC's response to Staff data request SK 4.03.

164   reconcile that schedule to IAWC's ICC annual report, Company responses to

165   Staff Data Requests, and appropriate interest rates: (1) the annual coupon

166   interest of the proposed 7.30% New Series issue was changed to 5.90% to

167   reflect the rate on 10-year U.S. treasuries plus 140 basis points;[11, 12] (2) the face

168   amount outstanding, maturity date and the interest rate of the Bolingbrook-Fixed

169   issue were adjusted to reflect the payment schedule in the Bolingbrook Asset

170   Purchase and Exchange Agreement ("contract") and the interest rate of

171   equivalent debt when the contract was signed in 1996; (3) the maturity date, face

172   amount outstanding and the interest rate of the Bolingbrook-Variable issue were

173   adjusted to reflect the minimum payment and the interest rate of Utility debt when

174   the contract was signed in 1996; and (4) the interest rate on the Variable Rate

175   Citizen Series and Variable Rate Tax Exempt were changed to reflect the current

176   rate the Company pays on these issues.

177   **Q.   Please explain why you changed the face amount outstanding and maturity**

178   **date of the Bolingbrook-Variable issue.**

179   A.   The Bolingbrook-Variable issue has a minimum payment of $275,000 a year for

180   six years.[13] The amount paid under the Agreement could increase depending on

181   the number of customers that take service from IAWC. Consequently, those

182   contingent payments are more akin to a purchase obligation than debt.

183   Moreover, that portion of the obligation is not known and measurable. Therefore,

---

[11] Survey of Professional Forecasters, Fourth Quarter 2002, p. 2.
[12] Company response to Staff data request SK 3.02.

184 I excluded it from the Bolingbrook-Variable issue. That adjustment reduces the

185 face amount outstanding from $1,444,609 to $1,185,374 and changes the

186 maturity date from 12/31/37 to 12/31/08.

187 **Q.** **Please explain why the interest rate the Company used for the two**

188 **Bolingbrook debt issues is inappropriate.**

189 A. The Company used the rate of return Citizens Utility Company ("Citizens") had

190 been granted in its most recent rate case.[14,15] The rate of return granted in

191 Docket No. 94-0481 is a weighted average of the costs of short-term debt, long-

192 term debt, and common equity.[16] The use of that rate of return is inappropriate

193 for two reasons. First, it includes the higher cost of common equity in a debt

194 obligation. Second, the cost of debt from Citizens most recent rate case

195 ("embedded cost of debt") is the historical interest rate Citizens paid on debt it

196 had outstanding in 1997. The embedded cost of debt for Citizens does not

197 reflect the interest rate available to Citizens at the time the Bolingbrook contract

198 was signed.

199 **Q.** **Please describe how you determined the interest rates for the two**

200 **Bolingbrook debt issues.**

---

[13] Asset Purchase and Exchange Agreement, February 27, 1996, p. 19.
[14] Company response to Staff data request SK 2.09.
[15] Company workpaper WPD-3 page 4 of 4.
[16] Order, Docket No. 94-0481, September 13, 1995, pp.14-16.

201   A.   Citizens had an AA rating from S&P when the contract with Bolingbrook was

202   signed on February 27, 1996.[17] Implied interest rates for the two Bolingbrook

203   debt issues should reflect Citizens' concurrent credit rating and the interest rates

204   prevailing when the contract was signed. Therefore, the implied interest rate on

205   both issues should reflect the interest rate on AA-rated utility debt on February

206   27, 1996. The interest rate for the debt issues were determined from the March

207   1, 1996 issue of Salomon Brothers Bond Market Round Up.[18] Since there is no

208   published utility rate with the same maturity as the Bolingbrook-Fixed issue's

209   original maturity of 11.5 years, I averaged the published rate on 10-year AA

210   Industrial debt and 10-year AA Financial debt. Industrial debt and utility debt had

211   the same reported interest rate on debt issues with other terms to maturity;

212   therefore the interest rate on 10-year AA industrial debt is a reasonable estimate

213   of the rate that Citizens could have obtained on 10-year debt.[19] Financial debt

214   had a higher interest rate than utility debt on issues with equivalent ratings and

215   maturity dates. The interest rate on financial debt was averaged with the rate on

216   industrial debt to reflect the slightly longer term to maturity of the Bolingbrook-

217   Fixed issue. The rate on the Bolingbrook-Variable issue was determined by

218   averaging the published rate on 5-year AA utility bonds and 7-year AA utility

219   bonds.

---

[17] Standard & Poor's Ratings Direct, "Research: S&P Lowers Sr Unsecd Debt Rtg on Citizens Util to AA-", May 7, 1998.
[18] Salomon Brothers, Bond Market Roundup: Abstract, March 1, 1996, p. 4.
[19] Bond Market Roundup did not publish a 10-year AA utility debt yield.

220   **Cost of Common Equity**

221   **Q.   How did you measure the investor-required rate of return on common**

222   **equity for IAWC?**

223   A.   I measured the investor-required rate of return on common equity for IAWC with

224   discounted cash flow ("DCF") and risk premium models. Since IAWC does not

225   have market-traded common stock, DCF and risk premium models cannot be

226   applied directly to IAWC; therefore, I applied both models to water utility and

227   public utility samples. [20]

228   **Sample Selection**

229   **Q.   How did you select your water sample?**

230   A.   I selected my water sample based on two criteria. First, I began with a list of all

231   domestic corporations assigned an industry number of 4941 (i.e., water utilities)

232   within *Standard & Poor's Utility Compustat*. Second, I removed any company

233   that had neither Zacks Investment Research ("Zacks") nor Institutional Brokers

234   Estimate System ("IBES") long-term growth rates. The remaining companies,

235   American States Water Company; Artesian Resources; California Water Service

236   Group; Connecticut Water Service, Inc.; Middlesex Water Company; Philadelphia

---

[20] Hereafter referred to as *water sample* and *utility sample*, respectively.

237   Suburban Corporation; SJW Corp.; and Southwest Water Company, compose

238   my sample.

239   **Q.   How did you select a utility sample comparable in risk to IAWC?**

240   A.   A firm's market-required return on common equity is a function of its operating

241   and financial risks. S&P business profile scores reflect the operating risk of a

242   utility. S&P focuses on industry characteristics as well as the company's

243   competitive position and management. Utilities' business profiles are evaluated

244   on a scale of one to ten. A rating of one denotes below average business risk. A

245   rating of ten denotes above average business risk.[21] I imputed an S&P business

246   profile score for IAWC, since it does not have one. I began with thirteen water

247   companies with S&P business profile scores listed on S&P *Utilities &*

248   *Perspectives*. Of these thirteen water utilities, eight are assigned a business

249   profile score of 3; three are assigned a business profile score of 2; and two are

250   assigned a business profile score of 4.[22] The average business profile score of

251   the thirteen water utilities is 2.9. From that average business profile score, I

252   concluded that a business profile score of 3 would be a reasonable estimate for

253   IAWC.

254   To form the utility sample, I began with a list of all domestic publicly traded

255   corporations assigned an industry number of 4911, 4922, 4923, 4924, 4931, or

---

[21] Standard & Poor's, *Corporate Ratings Criteria 2002,* www.standardandpoors.com/ratings, p 17.
[22] Standard & Poor's, *Utilities & Perspectives,* December 2, 2002, pp. 18-20.

256   4932 in the S&P *Utility Compustat II* database that matched IAWC's implied

257   credit rating of 'A' and business profile score of 3. Second, I removed any

258   company that had an S&P debt rating other than A+, A, or A-.   Next, I removed

259   any company that lacked either Zacks or IBES growth rates. Finally, I eliminated

260   any company that was in the process of being acquired by another company.

261   The remaining companies, AGL Resources Inc.; Consolidated Edison Inc.;

262   Keyspan Corp.; Laclede Gas Co.; Northwest Natural Gas Co.; Nstar; and

263   Piedmont Natural Gas Co, compose my utility sample.

264   **DCF Analysis**

265   **Q.   Please describe DCF analysis.**

266   A.   For a utility to attract common equity capital, it must provide a rate of return on

267   common equity sufficient to meet investor requirements. DCF analysis

268   establishes a rate of return directly from investor requirements. A

269   comprehensive analysis of a utility's operating and financial risks becomes

270   unnecessary in DCF analysis since the market price of a utility's stock already

271   embodies the market consensus of those risks.

272   According to DCF theory, a security price equals the present value of the cash

273   flow investors expect it to generate. Specifically, the market value of common

274   stock equals the cumulative value of the expected stream of future dividends

275   after each is discounted by the investor-required rate of return.

276 **Q.** **Please describe the DCF model with which you measured the investor-**

277 **required rate of return on common equity.**

278 A. As it applies to common stocks, DCF analysis is generally employed to

279 determine appropriate stock prices given a specified discount rate. Since a DCF

280 model incorporates time-sensitive valuation factors, it must correctly reflect the

281 timing of the dividend payments that stock prices embody. As such,

282 incorporating stock prices that the financial market sets on the basis of quarterly

283 dividend payments into a model that ignores the time value of quarterly cash

284 flows constitutes a misapplication of DCF analysis.

285 The companies in both samples pay dividends quarterly; therefore, I applied a

286 constant-growth DCF model that measures the annual required rate of return on

287 common equity as follows:

288
$$k = \frac{\sum_{q=1}^{4} D_{0,q}(1+g)(1+k)^{1-[x+0.25(q-1)]}}{P} + g.$$

where: $P \equiv$ the current stock price;

$D_{0,q} \equiv$ the last dividend paid at the end of quarter
q, where q = 1 to 4;

$k \equiv$ the cost of common equity;

$x \equiv$ the elapsed time between the stock observation and
first dividend payment dates, in years; and

$g \equiv$ the expected dividend growth rate.

289   That model assumes dividends will grow at a constant rate, and the market value

290   of common stock (i.e., stock price) equals the sum of the discounted value of

291   each dividend.

292   **Q.   How did you estimate the growth rate parameter?**

293   A.   Determining the market-required rate of return with the DCF methodology

294   requires a growth rate that reflects the expectations of investors. Although the

295   current market price reflects aggregate investor growth expectations, market-

296   consensus expected growth rates cannot be measured directly. Therefore, I

297   measured market-consensus expected growth rates indirectly with security

298   analysts' growth rate forecasts.

299   **Q.   Please describe the published growth rate forecasts used for the firms in**

300   **your samples.**

301   A.   I examined analysts' projected earnings growth rates in the November 14, 2002,

302   edition of IBES and data provided by Zacks on December 4, 2002. IBES and

303   Zacks summarize the earnings growth expectations of financial analysts

304   employed by the research departments of investment brokerage firms. Both

305   provide forward-looking, expectational estimates of earnings growth. The growth

306   rate estimates from IBES and Zacks for each firm in my samples are presented

307   on Schedule 6.05. For those companies with growth rate estimates from both

308   sources, I averaged the IBES and Zacks growth rates.

309   **Q.**   **How did you measure the stock price?**

310   A.   A current stock price reflects all information that is available and relevant to the

311   market; thus, it represents the market's assessment of the common stock's

312   current value. I measured each company's current stock price with its closing

313   market price from December 4, 2002. Those stock prices appear on Schedule

314   6.06.

315   Since stock prices reflect the market's expectation of the cash flows the

316   securities will produce and the rate at which those cash flows are discounted, an

317   observed change in the market price does not necessarily indicate a change in

318   the required rate of return on common equity. Price changes may reflect an

319   investor re-evaluation of the expected dividend growth rate. In addition, stock

320   prices change with the approach of dividend payment dates. Consequently,

321   when estimating the required return on common equity with the DCF model, one

322   should measure the expected dividend yield and the corresponding expected

323   growth rate concurrently.

324   **Q.**   **Please explain the significance of the column titled "Next Dividend**

325   **Payment Date" shown on Schedule 6.06.**

326   A.   Estimating year-end dividend values requires measuring the length of time

327   between each dividend payment date and the first anniversary of the stock

328   observation date. For the first dividend payment, that length of time is measured

329   from the "Next Dividend Payment Date." Subsequent dividend payments occur

330   in quarterly intervals.

331   **Q.**   **How did you estimate the next four expected quarterly dividends?**

332   A.   Most utilities declare and pay the same dividend per share for four consecutive

333   quarters before adjusting the rate. Consequently, I assumed the dividend rate

334   will adjust during the same quarter it changed during the preceding year. If the

335   utility did not change its dividend during the last year, I assumed the rate would

336   change during the next quarter. The lower and higher expected growth rates

337   were applied to the current dividend rate to estimate the expected dividend rate.

338   Schedule 6.06 presents the current quarterly dividends. Schedule 6.07 presents

339   the expected quarterly dividends.

340   **Q.**   **Based on your DCF analysis, what is the estimated required rate of return**

341   **on common equity for the water sample and the utility sample?**

342   A.   The DCF analysis estimates the required rate of return on common equity is

343   9.39% for the water sample and 10.64% for the utility sample, as shown on

344   Schedule 6.08. Those estimates are derived from the growth rates from

345   Schedule 6.05, the stock price and dividend payment dates from Schedule 6.06,

346   and the expected quarterly dividends from Schedule 6.07.

347   **Risk Premium Analysis**

348   **Q.**   **Please describe the risk premium model.**

349   A.   The risk premium model is based on the theory that the market-required rate of

350   return for a given security equals the risk-free rate of return plus a risk premium

351   associated with that security. A risk premium represents the additional return

352   investors expect in exchange for assuming the risk inherent in an investment.

353   Mathematically, a risk premium equals the difference between the expected rate

354   of return on a risk factor and the risk-free rate. If the risk of a security is

355   measured relative to a portfolio, then multiplying that relative measure of risk and

356   the portfolio's risk premium produces a security-specific risk premium for that risk

357   factor.

358   The risk premium methodology is consistent with the theory that investors are

359   risk-averse. That is, investors require higher returns to accept greater exposure

360   to risk. Thus, if investors had an opportunity to purchase one of two securities

361   with equal expected returns, they would purchase the security with less risk.

362   Conversely, if investors had an opportunity to purchase one of two securities with

363   equal risk, they would purchase the security with the higher expected return. In

364   equilibrium, two securities with equal quantities of risk have equal required rates

365   of return.

366   The Capital Asset Pricing Model ("CAPM") is a one-factor risk premium model

367   that mathematically depicts the relationship between risk and return as:

368
$$R_j = R_f + \beta_j \times (R_m - R_f)$$

where: R_j $\equiv$ the required rate of return for security j;

R_f $\equiv$ the risk-free rate;

R_m $\equiv$ the expected rate of return for the market portfolio; and

β_j $\equiv$ the measure of market risk for security j.

369   In the CAPM the risk factor is market risk, which is defined as risk that cannot be

370   eliminated through portfolio diversification. To implement the CAPM, one must

371   estimate the risk-free rate of return, the expected rate of return on the market

372   portfolio, and a security or portfolio-specific measure of market risk.

373   **Q.   How did you estimate the risk-free rate of return?**

374   A.   I examined the suitability of the yields on three-month U.S. Treasury bills and

375   thirty-year U.S. Treasury bonds as estimates of the risk-free rate of return.

376   **Q.   Why did you examine the yields on U.S. Treasury bills and bonds as**

377   **measures of the risk-free rate?**

378   A.   The proxy for the nominal risk-free rate should contain no risk premium and

379   reflect similar inflation and real risk-free rate expectations to the security being

380   analyzed through the risk premium methodology.[23] The yields of fixed income

381   securities include premiums for default and interest rate risk. Default risk

382   pertains to the possibility of default on principal or interest payments. Securities

383   of the United States Treasury are virtually free of default risk by virtue of the

384   federal government's fiscal and monetary authority. Interest rate risk pertains to

385   the effect of unexpected interest rate fluctuations on the value of securities.

386   Since common equity theoretically has an infinite life, its market-required rate of

387   return reflects the inflation and real risk-free rates anticipated to prevail over the

388   long run. U.S. Treasury bonds, the longest term treasury securities, were issued

389   with terms to maturity of thirty years; U.S. Treasury notes are issued with terms

390   to maturity ranging from two to ten years; U.S. Treasury bills are issued with

391   terms to maturity ranging from ninety-one days to one year. Therefore, U.S.

392   Treasury bonds are more likely to incorporate within their yields the inflation and

393   real risk-free rate expectations that drive, in part, the prices of common stocks

394   than either U.S. Treasury notes or Treasury bills.

395   However, due to relatively long terms to maturity, U.S. Treasury bond yields also

396   contain an interest rate risk premium that diminishes their usefulness as

397   measures of the risk-free rate. U.S. Treasury bill yields contain a smaller

398   premium for interest rate risk. Thus, in terms of interest rate risk, U.S. Treasury

399   bill yields more accurately measure the risk-free rate.

---

[23] Real risk-free rate and inflation expectations comprise the non-risk related portion of a security's rate of return.

400 **Q. Given that the inflation and real risk-free rate expectations that are**

401 **reflected in the yields on U.S. Treasury bonds and the prices of common**

402 **stocks are similar, does it necessarily follow that the inflation and real risk-**

403 **free rate expectations that are reflected in the yields on U.S. Treasury bills**

404 **and the prices of common stocks are dissimilar?**

405 A. No. To the contrary, short and long-term inflation and real risk-free rate

406 expectations, including those that are reflected in the yields on U.S. Treasury

407 bills, U.S. Treasury bonds, and the prices of common stocks, should equal over

408 time. Any other assumption implies that the real risk-free rate and inflation is

409 expected to systematically and continuously rise or fall.

410 Although expectations for short and long-term real risk-free rates and inflation

411 should equal over time, in finite time periods, short and long-term expectations

412 may differ. Short-term interest rates tend to be more volatile than long-term

413 interest rates.[24] Consequently, over time U.S. Treasury bill yields are less biased

414 (i.e., more accurate) but less reliable (i.e., more volatile) estimators of the long-

415 term risk-free rate than U.S. Treasury bond yields. In comparison, U.S. Treasury

416 bond yields are more biased (i.e., less accurate) but more reliable (i.e., less

417 volatile) estimators of the long-term risk-free rate. Therefore, an estimator of the

418 long-term nominal risk-free rate should not be chosen mechanistically. Rather,

419 the similarity in current short and long-term nominal risk-free rates should be

420 evaluated. If those risk-free rates are similar, then U.S. Treasury bill yields

421   should be used to measure the long-term nominal risk-free rate. If not, some

422   other proxy or combination of proxies should be found.

423   **Q.   What is the current yield on three-month U.S. Treasury bills and the current**

424   **estimated yield on thirty-year U. S. Treasury bonds?**

425   A.   Three-month U.S. Treasury bills are currently yielding 1.23%. The estimated

426   yield for Treasury bonds equals 5.24%.[25] Both estimates are derived from quotes

427   for December 4, 2002.[26] Schedule 6.09 presents the published quotes and

428   effective yields.

429   **Q.   Of the U.S. Treasury bill and bond yields, which is currently a better proxy**

430   **for the long-term risk-free rate?**

431   A.   In terms of the gross domestic product ("GDP") price index, the Energy

432   Information Administration ("EIA") forecasts the inflation rate will average 2.8%

433   annually during the 2002-2020 period.[27] In terms of the consumer price index

434   ("CPI"), the *Survey of Professional Forecasters* ("*Survey*") forecasts the inflation

---

[24] Fabozzi and Pollack, ed., *The Handbook of Fixed Income Securities*, Fourth Edition, Irwin, p. 789.

[25] Since the suspension of the 30-year U.S. Treasury bond, the U.S. Treasury publishes a Long-Term Average Rate ("LTAR"), which represents the arithmetic average of the bid yields on all outstanding fixed-coupon securities with 25 years or more remaining to maturity. Additionally, the U.S. Treasury publishes daily linear extrapolation factors that can be added to the LTAR to estimate a 30-year rate. www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex.html

[26] The Federal Reserve Board, *Federal Reserve Statistical Release: Selected Interest Rates, H.15 Daily Update*, http://www.federalreserve.gov/releases/H15/update/, December 5, 2002.

[27] Energy Information Administration, *EIA 2002 Long-Term Forecast*, Table 20, Macroeconomic Indicators.

435   rate will average 2.4% during the next ten years.[28] In terms of real GDP growth,

436   EIA forecasts the real risk-free rate will average 3.1% during the 2002-2020

437   period. The *Survey* forecasts real GDP growth will average 3.1% during the next

438   ten years.[29] Those forecasts imply a long-term, nominal risk-free rate between

439   5.5% and 6.3%.[30] Therefore, EIA and *Survey* forecasts of inflation and real GDP

440   growth expectations suggest that the U.S. Treasury bond yield more closely

441   approximates the long-term risk-free rate, currently. It should be noted, however,

442   that the U.S. Treasury bond yield is an upwardly biased estimator of the long-

443   term risk-free rate due to the inclusion of an interest rate risk premium associated

444   with its relatively long term to maturity.

445   **Q.**   **Please explain why the real risk-free rate and the GDP growth rate should**

446   **be similar.**

447   A.   Risk-free securities provide a rate of return sufficient to compensate investors for

448   the time value of money, which is a function of production opportunities, time

---

[28] *Survey of Professional Forecasters,* Federal Reserve Bank of Philadelphia, www.phil.frb.org/files/spf/survq202.html, November 22, 2002. The *Survey* aggregates the forecasts of approximately thirty forecasters.

[29] *Survey of Professional Forecasters,* Federal Reserve Bank of Philadelphia, www.phil.frb.org/files/spf/survq102.html, February 22, 2002.

[30] Nominal interest rates are calculated as follows:

$$r = (1 + R) \times (1 + i) - 1.$$

where: $r \equiv$ nominal interest rate;
                $R \equiv$ real interest rate; and
                $i \equiv$ inflation rate.

449   preferences for consumption, and inflation.[31] The real risk-free rate excludes the

450   premium for inflation. The real GDP growth rate measures output of goods and

451   services without reflecting inflation and, as such, also reflects both production

452   opportunities and consumers' consumption preferences. Therefore, both the real

453   GDP growth rate and the real risk-free rate of return should be similar since both

454   are a function of production opportunities and consumption preferences without

455   the effects of either a risk premium or an inflation premium.

456   **Q.**   **How was the expected rate of return on the market portfolio estimated?**

457   A.   The expected rate of return on the market was estimated by conducting a DCF

458   analysis on the firms comprising the S&P 500 Index ("S&P 500") as of

459   September 30, 2002. That analysis used dividend information reported in the

460   October 2002 edition of *Standard & Poor's Security Owner's Stock Guide*[32] and

461   closing market prices reported in Salomon Smith Barney, *S&P 500 Performance*

462   *Report: Third Quarter 2002*. Growth rate estimates were obtained from the

463   September 2002 edition of *IBES Monthly Summary Data* and October 1, 2002,

464   Zacks reports. Firms not paying a dividend as of September 30, 2002, or for

465   which neither IBES nor Zacks growth rates were available, were eliminated from

466   the analysis. The resulting company-specific estimates of the expected rate of

467   return on common equity were then weighted using market value data from

---

[31] Brigham and Houston, <u>Fundamentals of Financial Management</u>, 8th edition.
[32] Price information for Centerpoint Energy was obtained from www.cbsmarktwatch.com.
Dividend information for Centerpoint Energy and Principal Financial Group was obtained from
www.centerpoinenergy.com and www.principal.com , respectively.

468   Salomon Smith Barney, *S&P 500 Performance Report: Third Quarter 2002*. The

469   estimated weighted average expected rate of return for the remaining 351 firms,

470   composing 82.81% of the market capitalization of the S&P 500, equals 14.70%.

471 **Q.   How did you measure market risk on a security-specific basis?**

472 A.   Beta measures risk in a portfolio context. When multiplied by the market risk

473   premium, a security's beta produces a market risk premium specific to that

474   security. I used Value Line's beta estimates for all the companies in my samples

475   and regression analysis to determine the beta estimate for my samples.

476   The Value Line beta for a security is estimated with the following model using an

477   ordinary least-squares technique:[33]

478     $$R_{j,t} = a_j + \beta_j \times R_{m,t} + e_{j,t}$$

479

where $R_{j,t}$ $\equiv$ the return on security j in period t;

$R_{m,t}$ $\equiv$ the return on the market portfolio in period t;

a_j $\equiv$ the intercept term for security j;

β_j $\equiv$ beta, the measure of market risk for security j; and

$e_{j,t}$ $\equiv$ the residual term in period t for security j.

480   A beta can be calculated for firms with market-traded common stock. Value Line

481   calculates its betas in two steps. First, the returns of each company are

482   regressed against the returns of the New York Stock Exchange Composite Index

483   ("NYSE Index") to estimate a raw beta. The regression analysis employs 260

484   weekly observations of stock return data. Then, an adjusted beta is estimated

485   through the following equation:

486   $$\beta_{adjusted} = 0.35 + 0.67 \times \beta_{raw}.$$

487   The regression analysis estimate of beta for a security or portfolio of securities is

488   estimated with the following model using an ordinary least-squares technique:

489   $$R_{j,t} - R_{f,t} = a_j + \beta_j \times (R_{m,t} - R_{f,t}) + e_{j,t}$$

Where $R_{j,t}$ ≡ the return on security j in period t;

$R_{f,t}$ ≡ the risk-free rate of return in period t;

$R_{m,t}$ ≡ the return on the market portfolio in period t;

a_j ≡ the intercept term for security j;

β_j ≡ beta, the measure of market risk for security j; and

$e_{j,t}$ ≡ the residual term in period t for security j.

490   Next, a beta estimate for both samples was calculated in three steps using

491   regression analysis. First, the U.S. Treasury bill return is subtracted from the

492   average percentage change in the two samples' stock prices and the percentage

493   change in the NYSE Index to estimate each portfolio's return in excess of the

494   risk-free rate. Second, the excess returns of each of the two samples are

495   regressed against the excess returns of the NYSE Index to estimate a raw beta.

496   The regression analysis employs sixty monthly observations of stock and U.S.

---

[33]   Statman, Meir, "Betas Compared: Merrill Lynch vs. Value Line", *The Journal of Portfolio Management*, Winter 1981.

497   Treasury bill return data. Third, an adjusted beta is estimated through the

498   following equation:

499                     $\beta_{adjusted} = 0.33743 + 0.66257 \times \beta_{raw}$.

500 **Q.   Why do you use an adjusted beta estimate?**

501 A.   I use an adjusted beta estimate for two reasons. First, betas tend to regress

502   towards the market mean value of 1.0 over time; therefore, the adjustment

503   represents an attempt to estimate a forward-looking beta. Second, empirical

504   tests of the CAPM suggest that the linear relationship between risk, as measured

505   by raw beta, and return is flatter than the CAPM predicts. That is, securities with

506   raw betas less than one tend to realize higher returns than the CAPM predicts.

507   Conversely, securities with raw betas greater than one tend to realize lower

508   returns than the CAPM predicts. Adjusting the raw beta estimate towards the

509   market mean value of 1.0 compensates for the observed flatness in the linear

510   relationship between risk and return.[34] Securities with betas less than one are

511   adjusted upwards thereby increasing the predicted required rate of return

512   towards observed realized rates of return. Conversely, securities with betas

513   greater than one are adjusted downwards thereby decreasing the predicted rate

514   of return towards observed realized rates of return.

515 **Q.   What are the beta estimates for the water sample and the utility sample?**

---

[34] Litzenberger, Ramaswamy and Sosin, "On the CAPM Approach to the Estimation of A Public Utility's Cost of Equity Capital," *Journal of Finance*, May 1980, pp. 375-376.

516 A. The Value Line beta estimates average 0.59 for the water sample and 0.64 for

517 the utility sample. The regression beta estimates are 0.44 and 0.52, respectively.

518 The average of the Value Line and regression beta estimates equals 0.52 for the

519 water sample and 0.58 for the utility sample.

520 **Q. What required rate of return on common equity does the risk premium**

521 **model estimate for the two samples?**

522 A. The risk premium model estimates a required rate of return on common equity of

523 10.11% for the water sample and 10.73% for the utility sample. The computation

524 of those estimates appears on Schedule 6.09.

525 **Cost of Equity Recommendation**

526 **Q. Based on your entire analysis, what is your estimate of the required rate of**

527 **return on the common equity for IAWC?**

528 A. A thorough analysis of the required rate of return on common equity requires

529 both the application of financial models and the analyst's informed judgment. An

530 estimate of the required rate of return on common equity based solely on

531 judgment is inappropriate. Nevertheless, because techniques to measure the

532 required rate of return on common equity necessarily employ proxies for investor

533 expectations, judgment remains necessary to evaluate the results of such

534 analyses. Along with DCF and risk premium analyses, I have considered the

535   observable 6.84% rate of return the market currently requires on A-rated utility

536   long-term debt.[35] Based on my analysis, in my judgment, the investor-required

537   rate of return on common equity for IAWC is 10.22%.

538   **Q.**   **Please summarize how you arrived at the investor-required rate of return**

539   **on common equity for IAWC.**

540   A.   The models from which the individual company estimates were derived are

541   correctly specified and thus contain no source of bias. Moreover, I am unaware

542   of bias in any of my proxies for investor expectations.[36] Consequently, estimates

543   for a sample as a whole are subject to less measurement error than individual

544   company estimates. I estimated the investor-required rate of return on common

545   equity by: 1) averaging the DCF-derived estimates of the required rate of return

546   on common equity, or 10.02%, 2) averaging the risk premium-derived estimates

547   of the required rate of return on common equity, or 10.42%, and 3) taking the

548   midpoint of the DCF and risk premium derived estimates, or 10.22%.

549   **Common Equity Issuance Costs**

550   **Q.**   **Should the investor-required rate of return on common equity be adjusted**

551   **for issuance costs?**

---

[35]   Selection and Opinion, Value Line, December 12, 2002, p. 9.
[36]   Except as discussed above in regard to U.S. Treasury bond yields as proxies for the long-term risk-
     free rate.

552 A. Yes, the Company's filings with the Commission pursuant to 83 Ill. Adm. Code

553 240 verify that the Company incurred a total of $112,500 in common equity

554 issuance costs in 2002.

555 **Q. How should the issuance cost adjustment be calculated?**

556 A. The common equity issuance cost adjustment can be calculated in two different

557 ways. The first method ("perpetual") calculates an adjustment to be added to

558 common equity that provides a return on, but no recovery of common equity

559 issuance costs since common equity has an indefinite life span and thus, no

560 standard, finite recovery period. The perpetual adjustment is calculated by

561 multiplying the investor-required return on common equity by the unrecovered

562 issuance cost then dividing the result by the common equity balance. The

563 second method ("amortization") calculates an adjustment that allows the

564 Company to recover its flotation cost over a defined period of time. The

565 amortization adjustment is calculated by dividing the unrecovered issuance cost

566 by the time period allowed for recovery and then dividing that quotient by the

567 common equity balance.

568 **Q. What is the common equity issuance cost adjustment?**

569 A. Using IAWC's adjusted average 2003 balance of common equity of

570 $242,307,284 and an investor-required rate of return on common equity of

571 10.22%, the common equity issuance cost adjustment equals 0.0047% for the

33

572   perpetual method and .0155% for the amortization method assuming a three

573   year amortization period. Therefore, the cost of common equity for IAWC,

574   including issuance costs, is 10.22% under the permanent method and 10.24%

575   under the amortization method.

576   **Overall Cost of Capital Recommendation**

577   **Q.   What is the overall cost of capital for IAWC in this proceeding?**

578   A.   As shown on Schedule 6.01, the overall cost of capital estimate for IAWC is

579   7.38%. Since the common equity issuance expense is small relative to total

580   common equity, I recommend permitting IAWC to recover those issuance costs

581   over a three-year period. Therefore, my cost of capital recommendation of

582   7.38% incorporates a cost of common equity of 10.24%, which includes two

583   basis points for the recovery of $112,500 of common equity flotation costs.

584   **Cost of Capital Acquisition Savings**

585   **Q.   Please describe how you determined the Acquisition-related cost of capital**

586   **Savings ("Savings") for the former Citizens service territory?**

587   A.   The savings for the former Citizens service territory was determined using the

588   methodology approved in Docket No. 01-0556.[37] The Savings on the Assumed

---

[37] Order, Docket 01-0556, p. 4.

589   Debt was multiplied by the amount of assumed debt to calculate the total Savings

590   in dollars. Then the total Savings was multiplied by 50% to determine the

591   Savings to be included in the revenue requirement for the former Citizens service

592   territory. Savings to be shared with IAWC for the former Citizens service territory

593   equals $202,782 and is presented in Schedule 6.10.

594 **Q.** **Please describe how you determined the Savings for the non-Citizens**

595   **service territories.**

596 A.   The savings for the non-Citizens service territories was also determined based

597   on the methodology approved in Docket No. 01-0556.[38] I calculated the

598   embedded cost of debt excluding the Assumed Debt and the embedded cost of

599   debt including the Assumed Debt. The embedded costs of debt are shown in

600   Schedules 6.03 and 6.11. Next, I multiplied the dollar balance of long-term debt

601   in the capital structure by the difference between the Cost of Debt including

602   Assumed Debt and the Cost of Debt Excluding Assumed Debt. The Savings to

603   be shared with IAWC for the non-Citizens service territories equals $431,277 and

604   is presented in Schedule 6.11.

---

[38]   Order, Docket 01-0556, pp. 4-5.

605   **Response to Mr. Moul**

606   **Q.   Has Mr. Moul testified on rate of return testimony in any prior Commission**

607   **proceeding?**

608   A.   Yes. Mr. Moul testified on rate of return in Docket No. 00-0340.

609   **Q.   Does Mr. Moul's analysis for this proceeding differ in any meaningful way**

610   **from that presented in Docket No. 00-0340?**

611   A.   No.

612   **Q.   What was the result?**

613   A.   Mr. Moul's recommendations were not accepted.[39]

614   **Q.   Please summarize your evaluation of Mr. Moul's analysis of IAWC's cost of**

615   **common equity.**

616   A.   Mr. Moul's analysis contains several errors that lead him to over-estimate IAWC's

617   cost of common equity. Critical errors occur in, or are the result of, his DCF,

618   CAPM, and risk premium analyses. The most significant flaws in Mr. Moul's

619   analysis of IAWC's cost of common equity are the following:

---

[39] Order, Docket No. 00-0340, February 15, 2001, pp. 8-25.

620   1. Mr. Moul unjustifiably excluded Southwest Water Company from his water

621   sample.

622   2. Mr. Moul's use of historical data in each of his models is problematic.

623   3. Mr. Moul's Risk Premium Model ("RPM") is based on inappropriate estimates

624   of the common equity risk premium for his proxy groups.

625   4. Mr. Moul included an unwarranted leverage adjustment in deriving his DCF

626   and CAPM estimates of the cost of common equity.

627   5. Mr. Moul included an unwarranted size premium adjustment in his CAPM-

628   derived cost of common equity estimate.

629   **Exclusion of Southwest Water Company**

630   **Q.   Why is Mr. Moul's rationale for excluding Southwest Water Company**

631   **("SWWC") unjustified?**

632   A.   Mr. Moul excluded SWWC because the Company had reduced its dividend,

633   "which is unusual for a water company."[40] SWWC's dividend reduction occurred

634   in the third quarter of 1993.[41]   Investors evaluate a company based on current

635   information since they are concerned with how the Company will perform in the

636   future. Thus investors have had almost ten years to assess the effect of

637   SWWC's dividend cut on the Company's stock price and prospects for growth.

---

[40] IAWC Exhibit 7.0, page 16 of 59, lines 358-360.
[41] Southwest Water Company's 1993 Annual Report, p. 2.

638   **Historical Data**

639   **Q.   Why is Mr. Moul's use of historical data in his DCF, CAPM, and RPM**

640   **models improper?**

641   A.   First, historical data favors outdated information that the market no longer

642   considers relevant over the more recently available information. Second,

643   historical data reflects conditions that may not continue in the future. In other

644   words, use of average historical data implies that securities data will revert to a

645   mean. That implication is even more questionable for security returns since they

646   approximate a random walk, which suggests no tendency of mean reversion.[42]

647   That is, in a random walk, the "future steps or directions cannot be predicted on

648   the basis of past actions."[43] Finally, even if securities data were mean reverting,

649   there is no method for determining the true value of that mean. Consequently,

650   sample means, which depend upon the measurement period used, are

651   substituted. Thus, any measurement period chosen is arbitrary, rendering the

652   results uninformative.

653   **Q.   What historical data did Mr. Moul use in his cost of equity analyses?**

---

[42]   Burton G. Malkiel, *A Random Walk Down Wall Street*, Seventh Edition, Norton, 1999, pp. 141 and
       161.
[43]   Id., at 24, *emphasis added*.

654 A. Mr. Moul used historical data to estimate (1) the dividend yield in his DCF

655 analysis; (2) the A-rated utility bond default premium and the equity risk premium

656 in his RPM analysis; and (3) the equity risk premium in his CAPM analysis.

657 **Q. Please provide an example of how the use of historical data can distort**

658 **cost of equity analyses.**

659 A. First, consider Mr. Moul's use of historical data[44] in determining the dividend yield

660 (dividend ÷ stock price) in his DCF model. Since stock prices reflect all current

661 information, only the most recent stock price can reflect the most recently

662 available information. Historical stock prices <u>must</u> include observations that

663 cannot reflect the most current information available to the market. For example,

664 if the actual earnings for a company were much higher than anticipated, the

665 market would react to that news and bid up its stock price. Consequently, the

666 pre-earnings announcement stock prices would reflect obsolete information and

667 understate the value of that company's stock.

668 Mr. Moul implies that his use of historical data to estimate the dividend yield

669 reduces measurement error when he states that "the use of a six-month average

670 will reflect current capital cost rates while avoiding spot yields."[45] While

671 measurement error is a problem inherent in cost of common equity analysis and

672 should be reduced whenever possible, introducing old stock prices into an

---

[44] Mr. Moul used a monthly average of the six months ending June 2002 (Company Ex. 7.0, p. 30).
[45] Company response to Staff data request SK 1.07.

673   analysis simply substitutes one alleged source of measurement error, volatile

674   stock prices, with another, irrelevant stock prices. Stock prices can be influenced

675   by temporary imbalances in supply and demand; however, any distortions such

676   imbalances might have on the measured cost of common equity can be reduced

677   through the use of samples, a technique which Mr. Moul already applies.

678   Next, consider Mr. Moul's CAPM analysis, which requires an estimate of the

679   investor-required rate of return on the market portfolio. Mr. Moul estimates the

680   <u>required</u> rate of return on the market using, in part, historical <u>earned</u> rates of

681   return. As proxies for current required rates of return, historical earned returns

682   possess several shortcomings. First, the returns an investment generates are

683   unlikely to have equaled investor return requirements due to unpredictable

684   economic, industry-related, or company-specific events. Second, even if an

685   investment's return equaled investor requirements in a given period, both the

686   price of, and the investment's sensitivity to, each source of risk changes over

687   time. Consequently, the difference in the required rate of return between two

688   investments, such as common equity and debt, is unlikely to remain constant.

689   Third, the magnitude of the historical risk premium depends upon the

690   measurement period used. Unfortunately, no proven method exists for

691   determining the appropriate measurement period. Thus, historical earned rates

692   of return are questionable estimates of the required rate of return that are

693   susceptible to manipulation and whose use could distort the estimate of a

694   company's cost of equity.

695 **Q. Has the Commission previously ruled on the use of historical data in**

696 **determining a company's cost of common equity before?**

697 A.   Yes. In Docket No. 92-0357, a rate proceeding for Iowa-Illinois Gas and Electric

698 Company, the Commission Order stated, "[t]he Commission notes that the

699 investor-required return on common equity is a forward-looking concept. Mr.

700 Benore [the company witness], in many instances, inappropriately utilized

701 historical data to determine the Company's cost of equity."[46] Similarly, in Docket

702 No. 95-0076, a rate proceeding for Illinois-American Water Company, the

703 Commission Order stated, "[t]he Commission also concludes that Staff's criticism

704 of Dr. Phillips' use of two-month average historical stock prices and historical

705 growth rates in his traditional DCF analysis, and historical risk premiums in his

706 risk premium analysis are valid. Historical data is inappropriate in determining a

707 forward-looking cost of equity because it contains information that may no longer

708 be relevant to investors."[47]

709 **Risk Premium Model**

710 **Q. Please describe Mr. Moul's risk premium model.**

711 A.   To estimate an equity return commensurate with IAWC's level of risk, Mr. Moul

712 builds upon a risk-free rate estimate of 5.50%. To that base, he adds a 1.75%

---

[46] Order, Docket No. 92-0357, July 21, 1993, p. 66.
[47] Order, Docket No. 95-0076, December 20, 1995, p. 70.

713   default risk premium to project an A-rated public utility bond yield of 7.25%.

714   Next, he estimates a 5.32% equity premium, which represents the historical

715   difference between the realized returns on investment grade public utility bonds

716   and the S&P Public Utilities Index.[48] Mr. Moul adjusts the 5.32% premium

717   downward to 4.75% for the Water Group and 5.00% for the Gas Distribution

718   Group in recognition of the lower risk of his proxy groups in comparison to the

719   companies composing the S&P Public Utilities Index. Finally, he adds the 4.75%

720   and 5.00% premiums to the 7.25% A-rated utility bond yield, which results in cost

721   of equity estimates of 12.00% for the Water group and 12.25% for the Gas

722   Distribution group.

723   **Q.**   **Please describe the shortcomings of Mr. Moul's risk premium model.**

724   A.   Mr. Moul's methodology for determining a reasonable common equity risk

725   premium for his proxy groups is inappropriate. In determining the equity risk

726   premium, Mr. Moul began with a 5.32% base equity risk premium estimate

727   representing the historical earnings spread between investment grade public

728   utility bonds and the S&P Public Utilities Index. First, Mr. Moul's base equity

729   premium estimate is calculated from historical data, which is inappropriate for the

730   reasons stated in the Commission Orders previously cited. The dependence of

731   the magnitude of a historical risk premium upon the measurement period is

732   evident in Mr. Moul's risk premium methodology. Mr. Moul derived his estimated

733   equity premium from an average of the two shortest measurement periods (i.e.,

---

[48] Investment grade credit ratings comprise the AAA, AA, A, and BBB designations.

734   1974-2001 and 1979-2001). Mr. Moul's 1974-2001 measurement period results

735   in an average equity risk premium of 5.24% while his 1979-2001 measurement

736   period results in an average equity risk premium of 5.39%.[49] Mr. Moul selected

737   the shorter measurement periods to "provide a risk premium that conforms more

738   nearly to present investment fundamentals and removes some of the more

739   distant data from the analysis."[50] However, if Mr. Moul had chosen any year from

740   1980-1991 to begin his measurement period, then his highest possible average

741   equity risk premium would be 4.94% (i.e., 1980) and the lowest 1.88% (i.e.,

742   1990). Further, if Mr. Moul had chosen 1973 or 1975 as his beginning year,

743   instead of 1974, his results would be 4.50% and 5.91%, respectively, resulting in

744   equity risk premiums that are above or below his estimate by more than 0.50%.

745   Mr. Moul's data demonstrates the arbitrary nature of the measurement periods

746   he chose for his historical risk premium estimate.

747   Second, Mr. Moul added a risk premium measured from an investment grade

748   bond index to an estimate of A-rated bond yield without providing any support

749   that the two are equivalent.[51] Third, Mr. Moul provided no quantitative support for

750   the adjustments he made in deriving estimates of the equity risk premium for the

751   Water and Gas Distribution groups from the base equity risk premium.[52]

---

[49]   IAWC Exhibit 8.0, Schedule 10.
[50]   IAWC Exhibit 7.0, page 47, lines 1063-1065.
[51]   Company response to Staff data request SK 1.03.
[52]   Company response to Staff data request SK 1.17.

752		**Leverage Adjustment**

753 Q. **Please explain why the leverage adjustment Mr. Moul included in his DCF**

754   **and CAPM models is unwarranted.**

755 A. Mr. Moul's adjustments to his DCF and CAPM models are based on the incorrect

756   notion that utilities should be authorized rates of return on common equity in

757   excess of the investor-required return whenever their market values of common

758   equity exceed book values. To address this issue, one must first explore why the

759   market value of utility common equity exceeds book value, which Mr. Moul failed

760   to do.

761 Q. **Please explain why the market value of a utility's equity might be higher**

762   **than the book value of equity.**

763 A. There are two possible explanations for how utility stock prices have come to

764   exceed their respective book values: (1) the investor-required rate of return has

765   fallen or (2) expectations of future earnings have risen. The investor-required

766   rate of return on an investment in a utility would fall if either the price of risk (i.e.,

767   the risk premium) has fallen or if investors' perceived quantity of risk in that utility

768   has fallen. Regardless, if a utility's stock price grows to exceed its book value

769   due to a decline in investors' required rate of return for that utility, then it

770   obviously follows that the Commission should authorize a lower rate of return.

771   An increase in investors' expectations of future returns could also cause a rise in

772   market values over book values. Such an increase in expectations may be due

773   to positive deviations from the test year amounts upon which the company's

774   rates are set. Clearly, the Commission should not approve higher rates today

775   based on such deviations (e.g., higher than projected sales) from past rate case

776   estimates. Increased expectations of future returns may also be a function of

777   earned returns from sources other than the revenue requirements formula

778   component (R_{Other}), the product of rate base and rate of return. Earnings from

779   these sources could allow a utility to earn returns beyond the level needed to

780   meet investors' required rate of return.

781   R_{Other} can come from a number of sources. First, many utilities have unregulated

782   sources of income that would contribute to earnings beyond the level needed to

783   meet the required rate of return. Obviously, the Commission should not allow

784   utilities higher rates of return due to stock price increases caused by such

785   unregulated operations. Second, the normalization of deferred income taxes and

786   income tax credits might also contribute to the divergence between utility market

787   and book equity values since that practice compensates utilities for taxes they do

788   not yet owe. Finally, investors do not value utilities on the basis of accounting

789   earnings, as Mr. Moul suggests, but on economic earnings and cash flow. In

790   utility revenue requirements, part of cash flow comes from operating income (i.e.,

791   rate base $\times$ rate of return). The larger share of the remainder comes from

792   operating expenses in the form of depreciation and deferred taxes. The

793   Commission should not further increase allowed rates of return when benefits

794   that utilities receive from other aspects of the rate setting process such as tax

795   normalization rules and cash flow from sources such as depreciation and

796   deferred taxes increase stock prices above book value. To do otherwise would

797   compensate utilities twice for the same sources of cash flow.

798   **Q.**   **Mr. Moul argues that "the divergence of price and book value also creates a**

799   **financial risk difference…"[53] Do you agree?**

800   A.   No. The intrinsic risk level of a given company does not change simply because

801   the manner in which it is measured has changed. Such an assertion is akin to

802   claiming that the ambient temperature changes when the measurement scale is

803   switched from Fahrenheit to Celsius. Specifically, capital structure ratios are

804   merely indicators of financial risk; they are not sources of financial risk. Financial

805   risk arises from contractually required debt service payments. Changing capital

806   structure ratios from a market to book value basis does not affect a company's

807   debt service requirements.

808   **Q.**   **Has the Commission ruled on market-to-book adjustments before?**

809   A.   Yes. A market-to-book adjustment was presented in Consumers Illinois Water

810   rate case Docket No. 97-0351 and in AmerenCIPS' and AmerenUE's initial

811   delivery service tariff case, Docket No. 99-0121. The Amended Order from

812   Docket No. 97-0351 states that, "[the Commission does] not agree that, as stock

813   prices have risen, the problems associated with reliance on the traditional DCF

814   theory in rate cases have also increased," and that "[the Commission continues]

815   to rely upon the traditional DCF approach."[54] In Docket No. 99-0121, Ameren

816   witness Robert C. Porter based his cost of equity recommendation entirely on his

817   Comparable Earnings model analysis, arguing that it would be inappropriate to

818   apply an unadjusted DCF-derived estimate based on the market value of

819   common equity to the book value of common equity to determine the revenue

820   requirements.[55] However, the Commission Order from Docket No. 99-0121

821   rejected his argument stated that "the Commission has consistently used and

822   adopted estimates based on DCF and CAPM models and has not been

823   presented with any reason to depart from this practice."[56]

824 **Q. Are there any significant differences between the market-to-book**

825 **adjustments rejected by the Commission in past cases and those**

826 **presented by Mr. Moul?**

827 A.   No. Both are based on the false argument that an adjustment to a cost of equity

828   estimate derived from market values of equity is necessary when that estimate is

829   to be applied to book values of equity on rate base to determine utility rates.

---

[53] IAWC Exhibit 7.0, pp. 38-39.
[54] Amended Order, Docket No. 97-0351, June 17, 1998, p. 42.
[55] Docket No. 99-0121, Exhibit Ameren 6.0, pp. 6 and 13.
[56] Order, Docket No. 99-0121, August 25, 1999, p. 67.

830　　　　Thus, the Commission should reject Mr. Moul's market-to-book based leverage

831　　　　adjustments.

832　**Q.**　**What would the results of Mr. Moul's DCF and CAPM analysis be**

833　　　　**disregarding his leverage adjustments?**

834　A.　　The cost of equity determined from Mr. Moul's DCF analysis, before leverage

835　　　　adjustments, would be 9.22% for the Water group and 11.31% for the Gas

836　　　　Distribution group.[57]　The cost of equity estimates derived from his CAPM

837　　　　analysis, disregarding leverage and size premium adjustments, would be 10.31%

838　　　　for the Water group and 10.66% for the Gas Distribution group.[58]　The resulting

839　　　　cost of equity averages 10.38%.

840　　　　　　　　　　　　**Size-Based Risk Premium**

841　**Q.**　**Mr. Moul adds a risk premium based on firm size to his CAPM analysis. Is**

842　　　　**this adjustment appropriate?**

843　A.　　No. Mr. Moul's size-based risk premium has no theoretical basis. Rather, it is

844　　　　based on an empirical study that is not applicable to IAWC. Regardless, should

845　　　　a size-based risk premium be adopted, it should be based on the size of IAWC's

846　　　　ultimate parent company, RWE.

---

[57]　IAWC Exhibit 7.0, pp.42 and 44.
[58]　IAWC Exhibit 7.0, pp. 52-53.

847   **Q.   Why should the ultimate parent company be the basis for a size**

848   **adjustment?**

849   A.   IAWC's common equity financing ultimately would come from RWE. The market

850   value of RWE exceeds $14 billion. Being a part of a much larger organization

851   should enhance the ability of IAWC to access the market on reasonable terms.

852   When utilities combine, reductions in costs resulting from efficiencies should be

853   passed on to customers in the form of lower rates. Such economies of scale are

854   often advanced to justify utility combinations. Financial capital costs are also

855   subject to economies of scale. If the risk inherent in a utility's common stock is a

856   function of that utility's size, then the larger size of RWE should translate into a

857   decreased cost of common equity, in comparison to that of a company the size of

858   IAWC. If a risk premium were based on the size of IAWC, ratepayers would be

859   denied the benefits associated with the combined entity's stronger financial

860   profile.

861   **Q.   Please explain the significance of the absence of a theoretical basis for a**

862   **size-based risk premium.**

863   A.   Since a size-based risk premium has no theoretical basis, to the extent that a

864   correlation between firm size and return exists, that relationship is likely the result

865   of some other factor or factors that are related to both size and return, such as

866   liquidity or information costs. Relatively illiquid securities impose costs on

867   investors since they may be unable to sell illiquid securities at a fair price on a

868   timely basis. The securities of smaller companies tend to be less liquid than

869   those of larger companies since the potential breadth of the market for the former

870   tends to be more limited. In addition, gathering information regarding the

871   expected cash flows and risks of a security imposes costs an investor must

872   recover through the returns that security generates. If fewer sources of

873   information regarding smaller companies exist, then obtaining information might

874   be more expensive.

875   If the securities of RWE are less liquid or the availability of information regarding

876   RWE is more restricted than the average security, then adding a size-based

877   premium to a CAPM analysis of IAWC's cost of common equity might be proper.

878   However, Mr. Moul has not provided any evidence to demonstrate that a size

879   premium is warranted for utilities. In fact, in direct contrast with Mr. Moul's

880   claims, a study by Annie Wong, reported in the Journal of the Midwest Finance

881   Association, specifically found no justification for a size premium for utilities.[59]

882   Another study reported in the Financial Analysts Journal found that the "small

883   stock effect" may be less a market return phenomenon than a modeling problem

884   since measured size premiums are a function of methodological problems in

885   studies that purport to have detected them.[60] A third study found that the size-

886   based risk premium was restricted to expansionary periods, suggesting that the

---

[59] Wong, "Utility Stocks and the Size Effect: an Empirical Analysis," *Journal of the Midwest Finance Association,* 1993.

[60] The combination of portfolio construction and non-systematic price movements creates a biased source of measurement error. Fernholz, "Crossovers, Dividends and the Size Effect," *Financial Analysts Journal*, May/June 1998.

887   size premium is associated with speculative companies, rather than low-risk

888   utilities.[61]

889   **Q.**   **Has the Commission ruled on a size-based risk premium before?**

890   A.   Yes. A size-based risk premium was presented in Consumers Illinois Water rate

891   case Docket No. 97-0351. It was rejected on the basis that the company witness

892   failed to demonstrate that there is a direct relationship between the size of a

893   utility and its risk.[62]

894   **Q.**   **Does this conclude your direct testimony?**

895   A.   Yes, it does.

---

[61] Jensen, Johnson and Mercer, "The Inconsistency of Small Firm and Value Stock Premiums," *Journal of Portfolio Management*, Winter 1998.

[62] Amended Order, Docket No. 97-0351, June 17, 1998, p. 39.

Illinois-American Water Company

Staff's Proposed Weighted Average Cost of Capital

Class of Capital	Amount at Present Rates	Adjustment	Balance	Percent of Total Capital	Cost	Weighted Cost
Short-Term Debt	$ 9,707,764		$ 9,707,764	1.81%	1.60%	0.03%
Long-Term Debt	$ 283,734,791		$ 283,734,791	52.96%	5.14%	2.72%
Common Equity	$ 241,836,431	$ 470,853	$ 242,307,284	45.23%	10.24%	4.63%
Total	$ 535,278,986		$ 535,749,839	100.0%		7.38%

0

Company's Proposed Weighted Average Cost of Capital

Class of Capital	Amount at Present Rates	Adjustment	Balance	Percent of Total Capital	Cost	Weighted Cost
Long-Term Debt	$ 296,005,645		$ 296,005,645	54.85%	5.54%	3.04%
Common Equity	$ 241,836,431	$1,796,401	$ 243,632,832	45.15%	11.02%	4.97%
Total	$ 537,842,076		$ 539,638,477	100.0%		8.01%

Illinois-American Water Company

Staff's Proposed Weighted Average Cost of Capital

Line No.		Average Monthly Balance of Short-term debt	CWIP Accruing AFUDC	Total CWIP	Net Amount Outstanding
1	January	$ 19,196,000	$ 2,408,500	$ 2,408,500	$ 16,787,500
2	February	$ 17,764,500	$ 3,702,069	$ 3,702,069	$ 14,062,431
3	March	$ 18,503,500	$ 4,995,639	$ 4,995,639	$ 13,507,862
4	April	$ 19,945,000	$ 6,289,208	$ 6,289,208	$ 13,655,793
5	May	$ 19,595,500	$ 7,468,605	$ 7,468,605	$ 12,126,895
6	June	$ 21,709,000	$ 5,981,730	$ 5,981,730	$ 15,727,270
7	July	$ 22,249,000	$ 4,250,878	$ 4,250,878	$ 17,998,123
8	August	$ 17,284,248	$ 4,656,957	$ 4,656,957	$ 12,627,291
9	September	$ -	$ 4,791,319	$ 4,791,319	$ -
10	October	$ -	$ 4,457,584	$ 4,457,584	$ -
11	November	$ -	$ 3,742,171	$ 3,742,171	$ -
12	December	$ -	$ 2,824,205	$ 2,824,205	$ -

Average Balance 2003 $ 9,707,764

Illinois-American Water Company

Embedded Cost of Debt

Line No.	Issue	Date Issued	Maturity Date	Original Principal Amount	Principal Amount Outstanding Average 2003*	Unamortized Debt Expense*	Carrying Value	Interest Cost	Annual Amortization of Debt Expense	Annualized Interest	Embedded Cost
1	5.65% New Series	10/01/02	6/12/07	$ 30,000,000	$ 30,000,000	$ 252,632	29,747,368	$ 1,695,000	$ 63,158	1,758,158	
2	5.9% New Series	9/1/03	9/1/13	20,000,000	6,666,667	65,556	6,601,111	393,333	20,000	413,333	
3	Bolingbrook-Fixed 6.55%	7/31/02	12/01/13	7,361,481	5,990,298	-	5,990,298	387,266	-	387,266	
4	Bolingbrook-Variable 6.21%	7/31/02	12/31/08	1,413,084	1,185,374	-	1,185,374	72,722	-	72,722	
5	New Series-CZN	3/1/02	11/06/06	103,758,370	103,758,370	219,655	103,538,715	5,104,912	65,897	5,170,809	
6	Var Rate CZN Ser 1.70%	5/1/97	5/1/32	23,325,000	23,325,000	136,014	23,188,986	396,525	4,668	401,193	
7	Var Rate Tax Exempt 1.90%	3/28/02	3/1/32	24,860,000	24,860,000	764,949	24,095,051	472,340	-	472,340	
8	9.625% Series	3/15/89	2/1/19	6,000,000	6,000,000	46,672	5,953,328	577,500	3,000	580,500	
9	6.57% Series	3/23/94	2/1/04	16,800,000	16,800,000	8,010	16,791,990	1,103,760	13,728	1,117,488	
10	6.76% Series	12/28/95	12/01/05	7,000,000	7,000,000	18,238	6,981,762	473,200	7,548	480,748	
11	5.00% Series	2/24/98	2/1/28	12,000,000	11,990,000	698,413	11,291,587	599,500	28,416	627,916	
12	5.15% Tax Exempt	9/23/93	8/1/23	6,000,000	5,785,000	322,580	5,462,420	297,928	16,056	313,984	
13	5.10% Tax Exempt	6/23/99	6/1/29	30,645,000	30,645,000	1,534,658	29,110,342	1,562,895	59,220	1,622,115	
14	9.22% Series	12/15/98	12/01/09	6,000,000	4,175,000	34,847	4,140,153	384,935	5,436	390,371	
15	5.50% Tax Exempt	12/19/96	12/01/26	7,000,000	7,000,000	423,280	6,576,720	385,000	18,084	403,084	
16	5.00% Tax Exempt	2/25/98	2/1/28	6,000,000	6,000,000	357,274	5,642,726	300,000	14,532	314,532	
17	Shiloh Note - 6.50%	8/21/98	8/31/03	581,794	85,823	-	85,823	5,578	-	5,578	
18	Reacquired Debt	Amortization Period				Loss			Loss		
19	10.05% Series	12/15/88	12/01/03	3,000,000	0	6,652	(6,652)	-	14,521	14,521	
20	6.90% Series	4/16/91	3/1/21	6,000,000	0	364,910	(364,910)	-	20,652	20,652	
21	6.10% Tax Exempt	10/27/92	10/01/22	11,000,000	0	505,640	(505,640)	-	26,268	26,268	
22	6.10% Tax Exempt	10/15/92	10/01/22	6,000,000	0	294,913	(294,913)	-	15,324	15,324	
23	6.15% Tax Exempt	9/28/94	9/1/24	8,000,000	0	651,848	(651,848)	-	30,384	30,384	
24	Totals			$ 342,744,730	$ 290,433,198	$ 6,706,741	$ 283,734,548	$14,163,228	$ 426,892	$14,616,727	5.15%

25 * Average monthly balances were developed for all long-term debt issues and then averaged for the test year.
26   The Company had no balance of Unamortized discount or premium
27   The Company had no Annual Amortization of discount or premium

Illinois-American Water Company

Common Equity Adjustment

Month	Common Equity Month-End Balance: Present Rates (A)	Change in Earnings: Staff Proposed Rates (B)	Payout Ratio (C)	Change in Dividends Paid: Staff Proposed Rates (D)	Change in Common Equity: Staff Proposed Rates (E)	Common Equity Month-End Balance: Staff Proposed Rates (F)	Average (G)
December 2002	$ 243,754,753	-		-	-	$ 243,754,753	-
January 2003	$ 243,418,474	-		-	-	$ 243,418,474	243,586,614
February 2003	$ 242,900,839	-		-	-	$ 242,900,839	243,159,657
March 2003	$ 240,960,019	-		-	-	$ 240,960,019	241,930,429
April 2003	$ 240,524,403	-		- -	-	$ 240,524,403	240,742,211
May 2003	$ 240,526,270	-		-	-	$ 240,526,270	240,525,337
June 2003	$ 240,643,092	-		-	-	$ 240,643,092	240,584,681
July 2003	$ 241,448,346	-		-	-	$ 241,448,346	241,045,719
August 2003	$ 242,176,379	$ 547,903	75%	-	$ 547,903	$ 242,724,282	242,086,314
September 2003	$ 242,367,268	$ 1,698,498	75%	-	$ 1,698,498	$ 244,065,766	243,395,024
October 2003	$ 242,381,374	$ 1,698,498	75%	-	$ 1,698,498	$ 244,079,872	244,072,819
November 2003	$ 242,082,186	$ 1,698,498	75%	-	$ 1,698,498	$ 243,780,684	243,930,278
December 2003	$ 241,462,276	$ 1,698,498	75%	$ 1,684,801	$ 13,698	$ 241,475,974	242,628,329
						Average:	242,307,284

Notes:

Staff Proposed Rate in August is weighted (multiplied by 10/31) to recognize the ten days rates will be in place during August.

Column (B) = Staff Proposed ROE Deficiency / 12

ROE Deficiency = Staff Weighted Rate of Return on Common Equity X Staff Rate Base - (Company Operating Income under Present Rates -
        (Company Weighted Costs of Debt and Preferred Stock X Company Rate Base))

Sources: Illinois-American Exhibit 12.0 page 1 of 9
        ICC Staff data request SK 2.06

Illinois-American Water Company

Growth Rates

Water Sample

Company	Zacks Earnings	IBES Earnings	Average
1 American States Water Company	4.67%	4.50%	4.59%
2 Artesian Resources	7.50%	7.25%	7.38%
3 California Water Services	5.50%	4.00%	4.75%
4 Connecticut Water Services	3.00%	n.a. *	3.00%
5 Middlesex Water	6.00%	6.00%	6.00%
6 Philadelphia Suburban Corp.	8.33%	8.40%	8.37%
7 SJW Corp.	4.00%	4.00%	4.00%
8 Southwest Water	8.00%	n.a. *	8.00%

Utility Sample

Company	Zacks Earnings	IBES Earnings	Average
1 AGL Resources	5.80%	7.00%	6.40%
2 Consolidated Edison	3.31%	3.79%	3.55%
3 Keyspan Corp.	7.20%	7.75%	7.48%
4 Laclede Group	3.50%	3.00%	3.25%
5 Northwest Natural Gas	4.56%	5.30%	4.93%
6 NSTAR	5.33%	5.60%	5.47%
7 Piedmont Natural Gas	4.50%	4.50%	4.50%

* not available

Illinois-American Water Company

Water Sample

Company	Current Dividend				Next Dividend Payment Date	Stock Price
	$D_{0,1}$	$D_{0,2}$	$D_{0,3}$	$D_{0,4}$		
1 American States Water Company	$ 0.217	$ 0.217	$ 0.217	$ 0.221	03/01/03	$ 23.900
2 Artesian Resources	0.290	0.290	0.290	0.290	02/21/03	28.860
3 California Water Services	0.280	0.280	0.280	0.280	02/18/03	25.150
4 Connecticut Water Services	0.202	0.202	0.205	0.205	03/17/03	26.190
5 Middlesex Water	0.210	0.210	0.210	0.215	03/03/03	22.000
6 Philadelphia Suburban Corp.	0.133	0.133	0.133	0.140	03/01/03	20.790
7 SJW Corp.	0.690	0.690	0.690	0.690	03/01/03	78.000
8 Southwest Water	0.056	0.056	0.056	0.056	01/20/03	14.050
				-		

Utility Sample

Company	Current Dividend				Next Dividend Payment Date	Stock Price
	$D_{0,1}$	$D_{0,2}$	$D_{0,3}$	$D_{0,4}$		
1 AGL Resources	$ 0.270	$ 0.270	$ 0.270	$ 0.270	03/01/03	$ 23.950
2 Consolidated Edison	0.555	0.555	0.555	0.555	03/15/03	39.780
3 Keyspan Corp.	0.445	0.445	0.445	0.445	02/01/03	34.910
4 Laclede Group	0.335	0.335	0.335	0.335	01/02/03	23.340
5 Northwest Natural Gas	0.315	0.315	0.315	0.315	02/15/03	26.150
6 NSTAR	0.530	0.530	0.530	0.530	02/01/03	41.020
7 Piedmont Natural Gas	0.385	0.400	0.400	0.400	01/15/03	34.900

Illinois-American Water Company

Expected Quarterly Dividends

Water Sample

Company	$D_{1,1}$	$D_{1,2}$	$D_{1,3}$	$D_{1,4}$
American States Water Company	$ 0.221	$ 0.221	$ 0.221	$ 0.231
Artesian Resources	0.311	0.311	0.311	0.311
California Water Services	0.293	0.293	0.293	0.293
Connecticut Water Services	0.205	0.205	0.211	0.211
Middlesex Water	0.215	0.215	0.215	0.228
Philadelphia Suburban Corp.	0.140	0.140	0.140	0.152
SJW Corp.	0.718	0.718	0.718	0.718
Southwest Water	0.061	0.061	0.061	0.061

Utility Sample

Company	$D_{1,1}$	$D_{1,2}$	$D_{1,3}$	$D_{1,4}$
AGL Resources	$ 0.287	$ 0.287	$ 0.287	$ 0.287
Consolidated Edison	0.575	0.575	0.575	0.575
Keyspan Corp.	0.478	0.478	0.478	0.478
Laclede Group	0.335	0.346	0.346	0.346
Northwest Natural Gas	0.331	0.331	0.331	0.331
NSTAR	0.559	0.559	0.559	0.559
Piedmont Natural Gas	0.400	0.418	0.418	0.418

Illinois-American Water Company

DCF- Cost of Common Equity Estimate

Water Sample

	Company	Cost of Equity Estimate
1	American States Water Company	8.44%
2	Artesian Resources	11.90%
3	California Water Services	9.60%
4	Connecticut Water Services	6.24%
5	Middlesex Water	10.12%
6	Philadelphia Suburban Corp.	11.23%
7	SJW Corp.	7.79%
8	Southwest Water	9.82%
	Average	9.39%

Utility Sample

	Company	Cost of Equity Estimate
1	AGL Resources	11.40%
2	Consolidated Edison	9.52%
3	Keyspan Corp.	13.28%
4	Laclede Group	9.43%
5	Northwest Natural Gas	10.20%
6	NSTAR	11.19%
7	Piedmont Natural Gas	9.46%
	Average	10.64%

Illinois-American Water Company

Risk Premium Analysis

Interest Rates as of December 4, 2002

U.S. Treasury Bills		U.S. Treasury Bonds	
Discount Rate	Effective Yield	Bond Equivalent Yield	Effective Yield
1.20%	1.23%	5.17%	5.24%

Risk Premium Cost of Equity Estimates*

Water Sample

Risk-Free Rate		Beta		Risk Premium		Cost of Common Equity
5.24%	+	0.52	*	(14.70% - 5.24%)	=	10.11%

Utility Sample

Risk-Free Rate		Beta		Risk Premium		Cost of Common Equity
5.24%	+	0.58	*	(14.70% - 5.24%)	=	10.73%

*Risk-Free Rate Proxy is the U.S. Treasury Bond

Illinois-American Water Company

Acquisition Savings
Citizens Service Territory

Average per month Mid-Jan 01 to Mid Jan 02		Interest Rate on Citizens Assumed Debt	BMA*	SPREAD
Jan-01	Feb-01	4.67%	3.25%	1.43%
Feb-01	Mar-01	5.00%	3.33%	1.68%
Mar-01	Apr-01	5.24%	3.49%	1.75%
Apr-01	May-01	5.33%	3.59%	1.74%
May-01	Jun-01	4.92%	3.03%	1.89%
Jun-01	Jul-01	4.60%	2.62%	1.98%
Jul-01	Aug-01	4.26%	2.36%	1.90%
Aug-01	Sep-01	3.76%	2.19%	1.57%
Sep-01	Oct-01	3.33%	2.11%	1.22%
Oct-01	Nov-01	2.82%	1.90%	0.93%
Nov-01	Dec-01	2.60%	1.55%	1.06%
Dec-01	Jan-02	3.26%	1.31%	1.96%
	AVERAGE	4.148%	2.559%	1.589%
Interest Rate as of 10/31/2002		1.70%	1.85%	

$$ADS_t = Spread + Bench_t - ADI_{IAWC,t}$$

Spread = 1.589% = 4.148% - 2.559%

$Bench_t$ = current Interest Rate on BMA = 1.85%

$ADI_{IAWC,t}$ = current Interest Rate on Citizens = 1.70%

$$ADS_t = 1.589\% + 1.85\% - 1.70\%$$

ADSt	**1.739%**
Assumed Debt	$23,325,000
Cost of Debt Savings - CZN Rate Areas	$405,563
50% included in CZN Rate Area Rev. Req.	$202,782

* The Bond Market Association Municipal Swap Index

Illinois-American Water Company
Embedded Cost of Long-Term Debt
Excluding Assumed Debt

Line No.	Issue	Date Issued	Maturity Date	Original Principal Amount	Principal Amount Outstanding Average 2003*	Unamortized Debt Expense*	Carrying Value	Interest Cost	Annual Amortization of Debt Expense	Annualized Interest	Embedded Cost
1	5.65% New Series	10/01/02	06/12/07	30,000,000	30,000,000	252,632	29,747,368	1,695,000	63,158	1,758,158	
2	5.9% New Series	09/01/03	09/01/13	20,000,000	6,666,667	65,556	6,601,111	393,333	20,000	413,333	
3	Bolingbrook-Fixed 6.55%	07/31/02	06/01/12	7,361,481	5,990,298	-	5,990,298	387,266	-	387,266	
4	Bolingbrook-Variable 6.21%	07/31/02	12/31/37	1,413,084	1,185,374	-	1,185,374	72,722	-	72,722	
5	New Series-CZN	03/01/02	11/06/06	103,758,370	103,758,370	219,655	103,538,715	5,104,912	65,897	5,170,809	
6	Var Rate Tax Exempt 1.90%	03/28/02	03/01/32	24,860,000	24,860,000	764,949	24,095,051	472,340	-	472,340	
7	9.625% Series	3/15/89	2/01/19	6,000,000	6,000,000	46,672	5,953,328	577,500	3,000	580,500	
8	6.57% Series	3/23/94	2/01/04	16,800,000	16,800,000	8,010	16,791,990	1,103,760	-	1,117,488	
9	6.76% Series	12/28/95	12/01/05	7,000,000	7,000,000	18,238	6,981,762	473,200	7,548	480,748	
10	5.00% Series	02/24/98	02/01/28	12,000,000	11,990,000	698,413	11,291,587	599,500	28,416	627,916	
11	5.15% Tax Exempt	9/23/93	8/01/23	6,000,000	5,785,000	322,580	5,462,420	297,928	16,056	313,984	
12	5.10% Tax Exempt	06/23/99	06/01/29	30,645,000	30,645,000	1,534,658	29,110,342	1,562,895	59,220	1,622,115	
13	9.22% Series	12/15/98	12/01/09	6,000,000	4,175,000	34,847	4,140,153	384,935	5,436	390,371	
14	5.50% Tax Exempt	12/19/96	12/01/26	7,000,000	7,000,000	423,280	6,576,720	385,000	18,084	403,084	
15	5.00% Tax Exempt	02/25/98	02/01/28	6,000,000	6,000,000	357,274	5,642,726	300,000	14,532	314,532	
16	Shiloh Note - 6.50%	08/21/98	08/31/03	581,794	85,823		85,823	5,578	-	5,578	
17	Reacquired Debt		Amortization Period			Loss			Loss		
18	10.05% Series	12/15/88	12/01/03	3,000,000	-	6,652	(6,652)	-	14,521	14,521	
19	6.90% Series	04/16/91	03/01/21	6,000,000	-	364,910	(364,910)	-	20,652	20,652	
20	6.10% Tax Exempt	10/27/92	10/01/22	11,000,000	-	505,640	(505,640)	-	26,268	26,268	
21	6.10% Tax Exempt	10/15/92	10/01/22	6,000,000	-	294,913	(294,913)	-	15,324	15,324	
22	6.15% Tax Exempt	09/28/94	09/01/24	8,000,000	-	651,848	(651,848)	-	30,384	30,384	
23	Totals			$ 319,419,730	$ 267,941,532	$ 6,570,727	$ 261,370,805	$ 13,815,869	$ 408,496	$ 14,238,093	5.45%

24 * Average monthly balances were developed for all long-term debt issues and then averaged for the test year.

25 The Company had no balance of Unamortized discount or premium

26 The Company had no Annual Amortization of discount or premium

Acquisition Savings
Non-Citizens Service Territory

Cost of Debt excluding Assumed Debt =	5.45%
Cost of Debt including Assumed Debt =	5.15%
Savings	0.30%
Savings	0.30%
balance of long-term debt for rate case	$ 283,734,548
Total dollar savings	$ 845,529

Savings for non-Citizens territory to be included

in the revenue requirement (50% of Savings) $ 422,764